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EDITORIAL

HISTORY REVISITED: THE MAMMALS OF SOUTH AMERICA, A 3-VOLUME SERIES

It is the prerogative of individuals in the “golden years” of their lives to reflect on elements of the past they believe pertinent both to the current moment and to the future. So, please pardon my self-indulgence. I first set foot on the South American continent in the summer of 1968 when my wife and I accompanied Alfred Gardner to the Amazonian lowlands of eastern Peru. For the next 30+ years I worked in a number of countries but mostly Peru and Brazil and, over this period, I was witness to the development of what has become the most explosive and energetic general program in mammalian biology in the world. What follows is a brief history of the largest scholarly endeavor in which I have been involved on the continent over my professional career, made possible only by this burgeoning mammal program. For the continued sustenance of South American mammalogy, this endeavor is also, I hope and believe, of substantive importance.

*In June of 1977, Sydney Anderson (American Museum of Natural History, New York), Alfred Gardner (United States National Museum, Washington, D.C.), and I met at the American Society of Mammalogists (ASM) annual meeting at Michigan State University to develop a proposal for an identification manual for the mammals of the South America parallel to *The Mammals of Africa: An Identification Manual* (edited by J. Meester and H. W. Setzer and published by the Smithsonian Institution Press in 1971), in part as an update to Angel Cabrera's two-volume *Catálogo de los Mamíferos de America del Sur* published in 1958 and, posthumously, in 1961.*

*A month later we sent a letter to nearly 90 mammalogists in Europe and both North and South America outlining our proposal, and asked these individuals to judge its feasibility, evaluate our goal to provide a workable identification manual for non-taxonomists and a state-of-knowledge summary for taxonomists, seek a willingness to work toward these goals, and suggest others not on our initial list. Response to the proposal was uniformly positive, even if a few individuals expressed reservations that the project could be completed because many groups (e.g., notably *Oryzomys*, *Akodon*, and *Proechimys*) were judged to be in such poor taxonomic shape that they couldn't be treated effectively.*

In April 1978 we distributed a newsletter announcing the project concept and its goals, summarized responses to our initial proposal, and included an outline of account contents, with an example account. A second newsletter in October 1980 expanded on the first, established a steering committee of 10 international scholars, and identified individuals with special taxonomic and/or geographic expertise.

Concordantly, in October 1980 at the 8th Latin American Congress of Zoology held in Mérida, Venezuela, a Latin American Mammalogical Association was established, with Alberto Cadena from Bogotá elected President and Omar Linares of Caracas General Secretary. The community of South American mammalogists at that meeting endorsed the concept of

our proposed identification manual and expanded the list of individuals to develop further the concept underlying this project.

We then began a discussion with The University of Chicago Press for the production of a South American mammal treatise and on 21 June 1984 Syd, Al, and I signed a Memorandum of Agreement to publish the *Mammals of South America*. The work was proposed as a 3-volume series, to be published beginning with volume 1 (marsupials, soricomorphs, bats, and xenarthrans; editor A. L. Gardner) in 1986 followed by volume 2 (primates, carnivorans, sirenians, ungulates, cetaceans, and lagomorphs; editor S. Anderson) a year later and volume 3 (rodents; editor J. L. Patton) in 1988. While we began to receive draft accounts by the mid 1980s, wrestled with how to produce maps of marginal localities (remember, none of the electronic resources we have today were available then!), and other production issues, it quickly became clear that adherence to this original publication schedule was not possible. For a variety of reasons, the project languished for the next two decades, and Syd suffered a major illness that effectively removed him from work on the project. Al resuscitated the project in the early 2000s and set a fast pace to complete volume 1. His manuscript was finalized in 2006 and published in 2008. As volume 1 neared completion, I enlisted the help of Guillermo D'Elia and Ulyses Pardiñas and together we began the protracted effort necessary to complete the rodent volume. To do so took the collective effort of 56 separate authors, 41 from Latin American countries, all of who have been major contributors to the systematic literature on the taxa they cover.

As I write this essay, nearly 40 years have passed since Syd, Al, and I originally conceived this project—a very long gestation period. With substantial modification in format and information content, however, we are now nearly 2/3rds along the way to completion. As noted, the first volume appeared in 2008, the second volume, covering rodents, is due out early in 2015, and the final volume is in active production. My own rejuvenated effort on the rodent volume was only possible because of the collective effort of my co-editors, Guillermo and Ulyses, who focused their substantial energies and expertise on the highly diverse Sigmodontinae, which allowed me to concentrate on the remaining taxa plus the production of distribution maps, development of the accompanying gazetteer, collation of the hundreds of references, many centuries old, and other format details.

While this long hiatus between conception and completion has been frustrating to many of us, it is actually fortunate that the rodent volume was delayed for so long. The exponential increase in our knowledge of South American rodents over the past two decades would have made any effort published prior to now largely useless. I don't have a count of the numbers of taxa (genera and species) known when we conceived this project in the late 1970s, but that number was probably not much larger than what was reported by Cabrera in his *Catálogo*. In the 44 years since Cabrera's *Catálogo* that covered rodents appeared, the number of South American genera alone has increased nearly 3 fold (from 86 to 242) and the number of recognized species has nearly doubled (341 to 658). With few exceptions, these numbers are reflected in each of the 14 families of South American rodents currently recognized. Equally importantly, our increased understanding of numbers of taxa has been accompanied, for the first time, by well-corroborated phylogenetic hypotheses among taxa, and at all categorical levels. If species recognition is the foundation of biodiversity, phylogeny is the cornerstone upon which intelligent questions about evolutionary process can be asked, allowing us to extend understanding well beyond the simple delineation of pattern.

Our expanding knowledge of South American rodent diversity has been driven by multiple factors, ranging from the major paradigm shift in systematics to the phylogenetic principles established by Willi Hennig in the mid 1960s to the incredible increase in methods for both generating and analyzing large data sets, be these morphological or molecular. But, perhaps more importantly to my mind is that academic institutions in nearly all countries of the continent have realized that the study of organisms in their native environments is not only an area worthy of intellectual pursuit but also one of critically important national concern. These programs have excited young scholars about everything mammalian, instilling an interest in both the field and laboratory work necessary to recognize and understand this diversity.

While great strides have been made in delineating mammalian diversity, both taxon and lineage, huge holes persist. The systematics of many highly diverse groups remain poorly understood, their distributional limits are undefined, and even basic life history attributes of many species are completely unknown. The value of a treatise like the *Mammals of South America* series is thus to provide a synopsis of current knowledge but in so doing point to the holes that remain and, hopefully, engender interest among readers to fill those gaps. In my own early years, the publication of E. R. Hall and K. R. Kelson's 1959 two-volume treatment of North American mammals certainly achieved this dual goal; one need only compare those 1959 accounts with the revised edition that Hall published 20 years later to see how much knowledge about the mammals of North America had accrued in the intervening years. I likely won't be around when it is time to update our current rodent volume, but perhaps Ulyses and Guillermo, or their students, will be in a position to do so. And, there is no doubt but that an update will be needed—in the few months since our book went into production (in May of 2014) at least a half-dozen new species descriptions have appeared in the literature, combined molecular and morphological analyses have identified lineage connections between several sigmodontine rodents now simply regarded as *incertae sedis*, and highly refined geographic summaries of ranges have been detailed.

I conclude with two quotes that I believe encapsulate the value as well as future of South American mammalogy. One of these is the vision espoused by Joseph Grinnell, the pre-eminent early 20th century naturalist, expositor of fundamental concepts such as the ecological niche, and founding director of my own institution. Grinnell (*Popular Science Monthly*, 1910:166) wrote that "... the greatest value of our museum... will not be realized until the lapse of many years, **possibly a century** [emphasis mine] ... and this is that the student of the future will have access to the original record of faunal conditions in California and the west, wherever we now work. He will know the proportional constituency of our fauna by species, the relative numbers of each species and the extent of the ranges of species as they exist today." The "original record of faunal conditions" that Grinnell and his students documented were not only the vouchered specimens catalogued in the museum's collections but, equally importantly, the field journals, route maps, habitat photographs, and other archival materials that recorded in great detail the conditions under which individual animals were obtained or observed. Substitute any geopolitical unit for California, and place your studies in the context of the projected future of that unit, and each of you can follow Grinnell's vision. It is, after all, the baseline data we collect, and that are summarized in the *Mammals of South America* series, that detail where we are today—in many respects, these volumes represent Grinnell's baseline for the next century of South American mammalogy.

And, with the analytical tools now available, we don't have to wait until that century has passed to see change but can project from today into that future to establish management decisions that will preserve, and nurture, our planet's co-inhabitants.

As a final thought, the knowledge we now have at our fingertips could not have been gained, nor made accessible in this series of volumes, without the combined efforts of many who have directed their individual and collective energies to the study of mammalian diversity on the South American continent. As we noted in the front matter of the rodent volume: "This volume is dedicated to those scholars in academic institutions, governmental agencies, and non-governmental organizations in countries of the South American continent. At a pivotal point in the world-wide biodiversity crisis, these individuals have rightly assumed the mantle for the exploration, discovery, description, and conservation of the mammals of their continent, both through the programs they have developed, the academic institutions and professional organizations they have established and populated, the front rank publication series they have initiated and are supporting, and the students they have trained, and who will train those of future generations. There has been remarkable growth in these programs, especially over the past two to three decades, with an energy level and commitment to discovering, archiving, and understanding mammalian diversity in South America that is currently unsurpassed anywhere else in the world." Thank you all.

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